

Image Processing Functions

For:

ISee PC Imaging Software

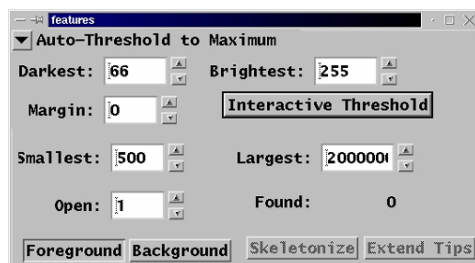
ISee MAC Imaging Software

ISee SGI Imaging Software

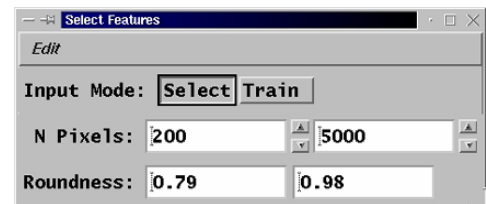
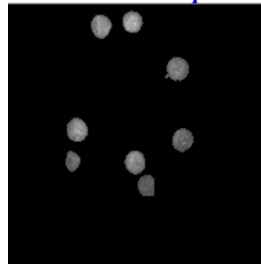
Processing an acquired image or images typically involves the enhancement of features within the image(s) and selecting features within the image(s) for data analysis. ISee's standard processing functions allows the user to interactively create multiple region of interests(ROIs) with a single image or list of images and provides an almost unlimited combination of contrast enhancement, edge, smoothing and sharpening filters, haze removal filters, and feature extraction parameters in preparation for data analysis. With ISee, original image integrity is always maintained through the uses of internally created image duplicates.

Feature Extraction Routine

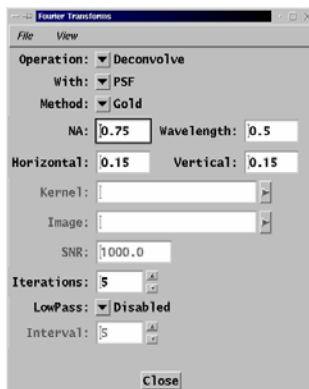
Allows the user to view the original image, the image of the accepted features and the image of the features that were rejected.



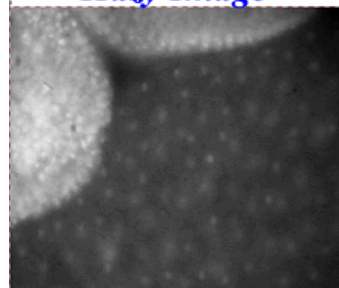
Features Accepted



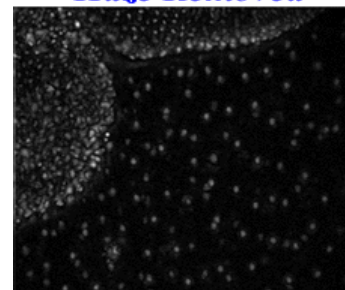
Haze Removal with 2D FFT Deconvolution Function



Hazy Image



Haze Removed



ISee's Standard Image Processing Tools include:

Create Single and Multiple ROIs

- Per Image
- Per Stacks of Images

Arithmetic Functions

- Addition
- Subtraction
- Multiplication
- Division

Logical Functions

- AND
- OR
- XOR
- NOT

Geometric Functions

- Rotate
- Scale
- Reflect
- Transpose
- Translate
- Warping

Morphological Functions

- Erosion
- Dilation
- Opening
- Closing
- Skeletonization

Process Control Functions

- Go
- If
- Loop
- Parallel
- Prompt
- Split
- Sync
- Wait
- Merge

Image Filters

- Edge Filters (Sharpening)
 - Sobel
 - Prewitt
 - Roberts
 - Laplacian
- Convolution Filters (Blurring)
 - 3X3
 - 5X5
 - 7X7
 - User Definable
- Median Filters (Smoothing)
 - 5X2
 - 3X3
 - 5X5
 - 7X7
- 2D Fourier Spectra Filters
 - Amplitude
 - Phase
 - Power
- 2D FFT Deconvolution Filters (Haze Removal)
 - Weiner
 - Interactive Constrained
 - Van Cittert Method
 - Gold Method
 - Point Spread Function Calculation
 - PSF Image
 - Mathematical
- Nearest Neighbor Deconvolution Filter

Image Registration

- Automatic
- Manual

Feature Extraction Functions

- Intensity Thresholding
- Segmentation
- Open/Close Operators
- Size Threshold
- Shape Parameters
 - N Pixels
 - N Holes
 - Area
 - Center X
 - Center Y
 - Box Width
 - Box Height
 - Box Area
 - Min Radius
 - Hole Area
 - Total Area
 - Hole %
 - Perimeter
 - Angle
 - Major Length
 - Ppda
 - Roundness
 - Mean Radius
 - Max Radius
 - Center Box Y
 - Max Rad Angle
 - Min/Max Angle
 - Min/Max Ratio
 - Hole Perimeter
 - Total Perimeter
 - Minor Length
 - Axial Ratio
 - Variance Radius
 - Center Box X
 - Min Rad Angle

Image Intensity Functions

- Adaptive Histogram Equalization
- Contrast Enhancement
- Exponential Intensity Scaling
- Logarithmic Intensity Scaling
- Intensity Masking
- Square Root Intensity Scaling
- Threshold Intensity Scaling

Image Conversion Functions

- RGB to HSI
- HSI to RGB
- 12/16-Bit .TIFF to 8-Bit .TIFF
- ISee Image File Format To:
 - .bmp
 - .cur
 - .eps
 - .fit
 - .gif
 - .hdf
 - .ico
 - .icon
 - .jfif
 - .mpnt
 - .pbm
 - .pcd
 - .pic
 - .pict
 - .pix
 - .pnm
 - .ppm
 - .ps
 - .ras
 - .rawrgb
 - .rgba
 - .rla
 - .rle
 - .rpbm
 - .rpgm
 - .rpnm
 - .rppm
 - .soft
 - .synu
 - .tga
 - .tiff
 - .viff
 - .x
 - .xbm
 - .xwd

Movie Conversion Functions

- AVI
- MPEG
- QT
- SGIMV